

REMARKS

Entry of the foregoing, reexamination and reconsideration of the subject application, as amended, pursuant to and consistent with 37 C.F.R. § 112, are respectfully requested in light of the remarks which follow.

I. Amendments to the Claims

By the foregoing amendments to the claims, claims 49, 70, 74, 76, 77, 79, 80, and 81 have been amended as described below, and claims 68 and 69 have been canceled.

The amendments to the claims, including cancellation of claims, have been made without prejudice or disclaimer to any subject matter canceled or recited herein. Applicants reserve the right to file one or more continuation and/or divisional applications directed to any canceled subject matter. No new matter has been added, and entry of the foregoing amendments of the above-identified application is respectfully requested.

II. Response to Claim Objections

At pages 3-4 of the Office Action, claims 74, 76, 77, 79, and 80 have been objected to for reciting un-italicized scientific names.

In response, claims 74, 76, 77, 79, and 80 have been amended to italicize the genus and species names of organisms. Accordingly, Applicants respectfully request reconsideration and withdrawal of this objection.

III. Response to Claim Rejections Under 35 U.S.C. § 112, First Paragraph

At pages 4-8 of the Office Action, claims 49-51 and 68-82 have been rejected under 35 U.S.C. § 112, first paragraph, as purportedly failing to comply with the written description requirement.

Specifically, the Examiner has stated that with the exception of the chemical structures disclosed at the paragraph spanning pages 5 and 6 of the Office Action, a person of ordinary skill in the art would not have been able to envision the chemical structure of the "protected forms" recited in the present claims.

This rejection is respectfully traversed.

Information which is known in the art need not be described in detail in the specification (see, e.g. *Hybritech, Inc v. Monoclonal Antibodies, Inc.*, 231 USPQ 81, 90 (Fed. Cir. 1986)).

With respect to the present application, Applicants respectfully submit that the specification clearly defines the "protected forms" as compounds or their salts wherein one or more of the hydroxyl groups at positions 4, 5 and 6 are replaced by protecting groups. Furthermore, suitable protection groups were well known and had been extensively studied as of the filing date of the present application. In addition, a representative number of species of suitable protection groups are set forth in the specification (see, e.g., the paragraph spanning pages 5 and 6)). Thus, the present specification, along with the prior art at the time of filing, provided sufficient information to envisage which protection groups would be suitable for the present invention.

Hence, Applicants submit that the written description requirement is met for the entire scope of the claims. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

IV. Response to Claim Rejections Under 35 U.S.C. § 112, Second Paragraph

At pages 8-10 of the Office Action, claims 49-51 and 68-82 have been rejected under 35 U.S.C. § 112, second paragraph, as purportedly indefinite for a number of reasons.

This rejection is respectfully traversed.

With respect to "2'-deoxynucleoside precursors," Applicants submit that this term is clearly described in the specification, at least at page 5, paragraph 2.

To expedite prosecution in the present application, and not to acquiesce to the Examiner's rejection, claim 70 has been amended to depend from claim 69; claim 79 has been amended to depend from claim 78; and the "optional" pH range has been deleted from claim 81.

Accordingly, the claims as amended particularly point out and distinctly claim the subject matter which Applicants regard as the invention, and Applicants respectfully request reconsideration and withdrawal of this rejection.

V. Response to Claim Rejections Under 35 U.S.C. §§ 102 and 103

A. At pages 10-11 of the Office Action, 49-51, 68-74, 78 and 81 have been rejected under 35 U.S.C. § 102(b) as purportedly being anticipated by Wong (U.S. Patent No. 5,759,825).

B. At pages 11-13 of the Office Action, claims 49-51, 68-78 and 81 have been rejected under 35 U.S.C. § 103(a) as purportedly unpatentable over Wong (U.S. Patent No.

5,759,825) in view of Candy et al. (Biochimica et Biophysica Acta, 1998, Vol. 1385, pp. 323-338).

C. At pages 14-15 of the Office Action, claims 49-51, 68-74, 81 and 82 have been rejected under 35 U.S.C. § 103(a) as purportedly unpatentable over Wong (U.S. Patent No. 5,759,825).

These rejections are respectfully traversed.

To expedite prosecution in the present application, and not to acquiesce to the Examiner's rejection, the claims have been amended as set forth above. In particular, claim 49 has been amended to recite the subject matter of claims 68 and 69 (i.e. that the decarboxylation step is effected by an enzymatic reaction comprising a single step, and that the enzymatic reaction is catalyzed by an enzyme having keto acid decarboxylase activity, respectively).

In contrast to the claimed subject matter, Wong is related to the production of 2-ketoaldonic acid by an aldolase condensation reaction involving pyruvate in excess and an aldose receptor (abstract, column 1, lines 42-45 of the reference). Then, in a second step, a pyruvate decarboxylase is used for removing the excess of pyruvate (column 1, lines 23-25, 59-63). It is expressly mentioned in column 2, lines 23-34 of Wong that after the first reaction is completed, the enzyme pyruvate decarboxylase is then added to the reaction mixture until decomposition of pyruvate in excess, and this addition preferably occurs after a denaturation of the aldolase by acidification generally. See also column 3, lines 9-13. In fact, as the aldolisation is reversible, the denaturation of aldolase in order to avoid the decomposition of aldol is compulsory. This step of denaturation is always used in the experimental part of Wong (column 4, lines 17-22, and examples).

The Examiner has asserted that the pyruvate decarboxylase used to remove the excess of pyruvate could also act for a decarboxylation of aldol. However, this is not taught or suggested by Wong, and would be recognized as incorrect by a person of ordinary skill in the art for at least the following reasons:

- Pyruvate decarboxylase is highly sensitive to several substrates, due to the complexity of its active site (as mentioned in Candy et al., page 330, Figure 2 and Table 3). Table 3 of Candy et al. clearly shows differences in reaction selectivity and kinetics involving wild type or mutants of pyruvate decarboxylase with respect to substrate and cofactors. Applicants also enclose herewith an additional reference (A. Yep and M.J. McLeish, "Engineering the Substrate Binding Site of Benzoylformate Decarboxylase" American

Chemical Society, College of Pharmacy, University of Michigan, 2009), showing different selectivity and kinetics according to several substrates on page 8392 Table 3, for pyruvate decarboxylase. Thus, a person of ordinary skill in the art would not have reasonably expected that the pyruvate decarboxylase used for decomposition of pyruvate would have a sufficient specificity on the present compounds of formula (I).

- The denaturation of aldolase by acidification conducts to a modification and distortion of the reaction medium able to alter the specificity of the pyruvate decarboxylase and then leading to an absence of aldol's decarboxylation in this prior art reference.

- Moreover, Wong teaches a chemical way for proceeding to the decarboxylation of aldol, such as the Barton's radical-mediated decarboxylation as mentioned in column 16, lines 29- 54, and does not teach or suggest a biochemical way by using enzyme.

Applicants further submit that the additional references cited by the Examiner do not remedy the serious deficiencies of Wong.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. §§ 102 and 103.

CONCLUSION

In view of the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order. Such action is earnestly solicited.

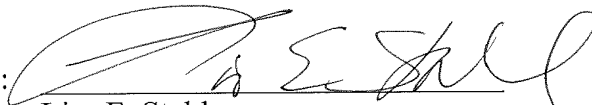
In the event that there are any questions related to this response, or the application in general, it would be appreciated if the Examiner would telephone the undersigned attorney at the below-listed telephone number concerning such questions so that prosecution of this application may be expedited.

Respectfully submitted,

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Date: October 8, 2009

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